## 1999

## FAA/DER Recurrent Seminar General Session

Systems and Equipment & Flight Test DERs (Charts C1, C2, G, and H)



Federal Aviation Administration
Los Angeles Aircraft Certification Office

September 22, 1999 Golden Sails Hotel Long Beach, CA

#### LA ACO DER RECURRENT SEMINAR

#### GENERAL SESSION, SEPT. 22, CRYSTAL BALLROOM GOLDEN SAILS HOTEL LONG BEACH, CA

TIME	SUBJECT	PRESENTER
8:00-8:05AM	LOGISTICS	S. GROBER
8:05-8:30AM	INTRODUCTION/CERTIFICATION PROCESS IMPROVEMENT	G. THOMPSON
8:30-9:15 AM	SAFER SKIES	K. OLSEN
9:15-9:35AM	COFFEE BREAK	
9:35-10:20AM	ACO/FSDO FIELD APPROVAL UPDATE	J. KNOEBBER/ C. VUONG/DER
10:20-10:40AM	AEG PERSPECTIVE FOR FIELD APPROVALS	W. RAU
10:40-11:00AM	DESIGNEE MGMT. HANDBOOK, ORDER 8100.8 DER GUIDANCE HANDBOOK, ORDER 8110.37(c)	S. FRICK
11:00-12:30PM	LUNCH	
12:30-1:20PM	CURRENT ISSUES IN INTERNATIONAL CERTIFICATION	M. CHESTON
1:20-1:35PM	RISK ASSESSMENT FOR TIA'S	J. RICHMOND
1:35-2:00PM	NEW REGULATIONS	R. STACHO
2:00-2:20PM	COFFEE BREAK	
2:20-2:35PM	FOIA & THE DER	S. KENNEDY
2:35-2:55PM	SPECIAL PROCESS SPECIFICATIONS	K. KRUMLAUF
2:55-3:15PM	INTERNET/FEDWORLD UPDATE	R. BROWN
3:15-3:30PM	NRS UPDATE	м. соок

# FAA and Industry Guide to Product Certification

Gilbert Thompson

Airframe Branch Los Angeles Aircraft Certification Office

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## FAA/AIA/GAMA Certification Process Improvement Team

- U.S. Industry/FAA working together to improve process for Certification, Production and COSP
- FAA commitment at all Directorates
- FAA and Industry Guide to Product Certification:
  - Early closure of certification basis
  - Agreement on delegation plan, conformity process, COSP plan, and roles and responsibilities
  - FAA/company partnership agreement
  - FAA/project specific partnership agreement

## Purpose of the Guide

- How to define & document an effective/efficient product certification process between the FAA and applicant
- Establish a clear understanding of the needs and expectations of both parties
- Reduce cycle time to certificate a product
- Ensure regulatory compliance
- Require earlier FAA involvement with applicants in project planning

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## GOALS - Cooperative partnership between FAA and applicant's Leadership and Team Players

- Safety
- Teamwork
- Communication
- Planning for success
- Quality products and services
- Accountability at all levels

### Los Angeles DER Recurrent Seminar-September 22, 1999 Certification Process Improvement

### Vision

- Timely and efficient product type design and production approval
- Clearly defined and understood roles, responsibilities, and accountability of all stakeholders
- Timely Identification and resolution of:
  - the certification basis:
  - potential safety issues;
  - business practice requirements
- Optimal delegation using safety management concepts with appropriate controls and oversight

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## Six Phases of Product Certification

- Partnership for Safety Plan phase
- Conceptual design & standards phase
- Refined product definition & risk management phase
- Certification project planning phase
- Certification project management phase
- Post certification activities phase

## Two Major Elements

## Partnership for Safety Plan

- Between applicant & FAA
- Written agreement for early familiarization & planning
- Establishes expectations, operating norms & deliverables
- Defines discipline & methodology
- Company/FAA commitment

## Product Specific Certification Plan

- Developed for the conduct of each certification plan
- In concert with the Partnership for Safety Plan
- Used as a project management tool
- Would contain specific project procedures for delegation, conformity, issue resolution,
- Program/FAA commitment

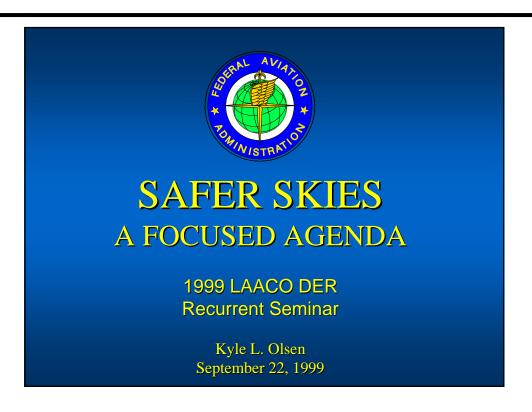
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## Key Players - Key Principles

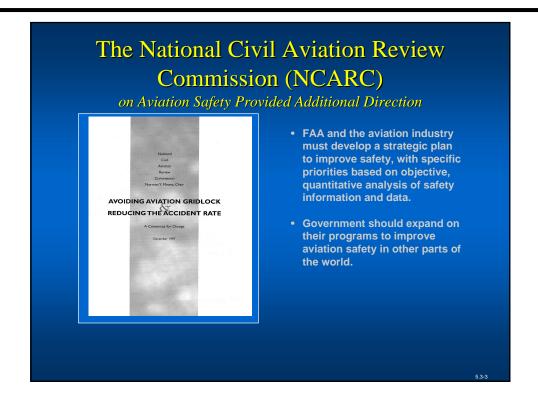
- ALL STAKEHOLDERS PARTICIPATE
- Desired results Win-Win Partnership
- Guidelines Partnership for Safety Plan
- Resources Project Specific Certification Plan
- Accountability Project Specific Certification Plan
- Consequences mutual interdependence

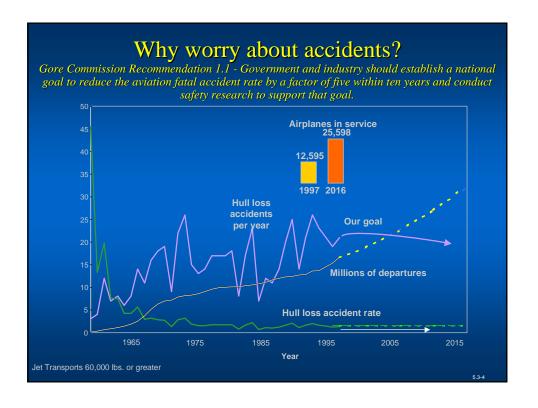
### **NEXT STEPS**

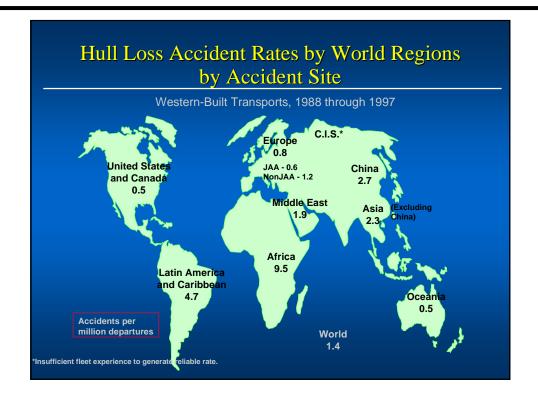
- Finalize FAA & Industry Guide February 1999
- 75% of ACOs implement a PSP with a targeted Industry partner in FY99
- Expand to additional Industry partners
- Continuous feedback and improvement
- Success is in the journey, not arrival at the destination

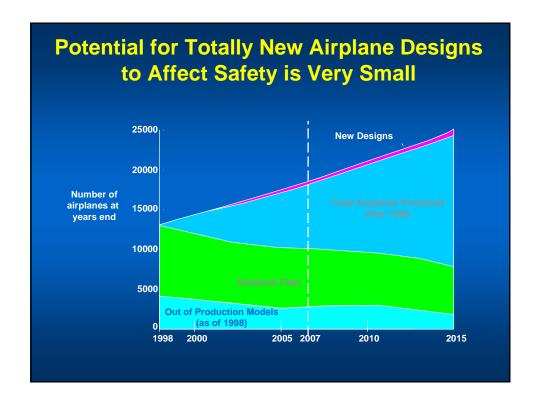


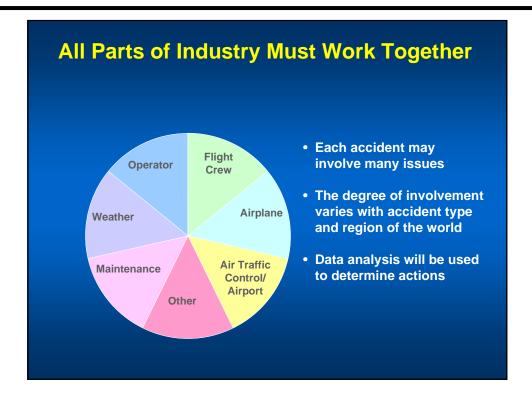




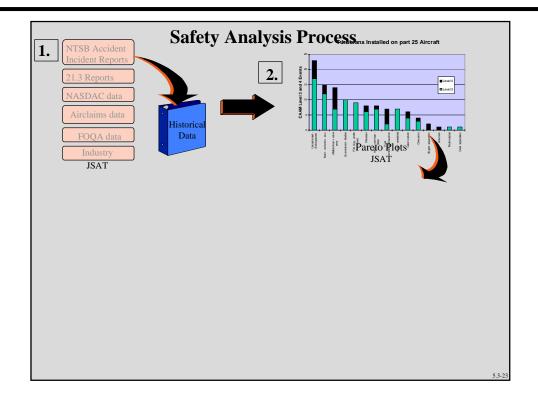


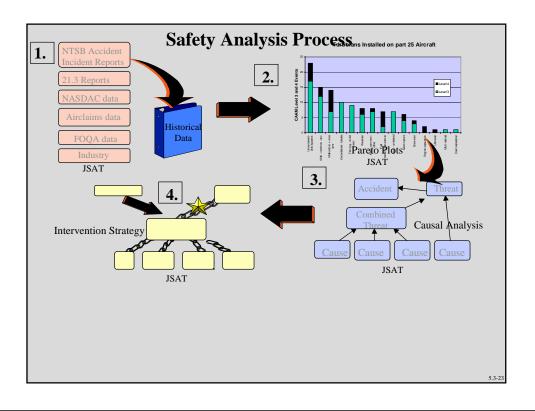


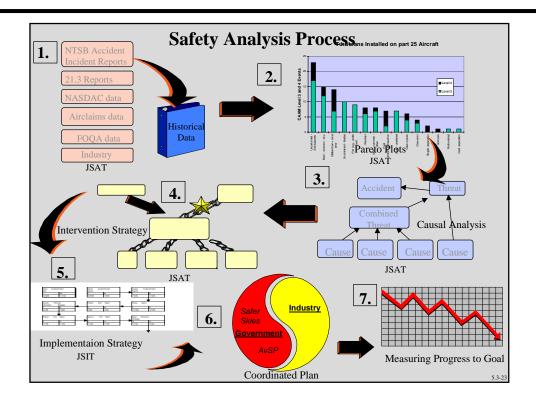


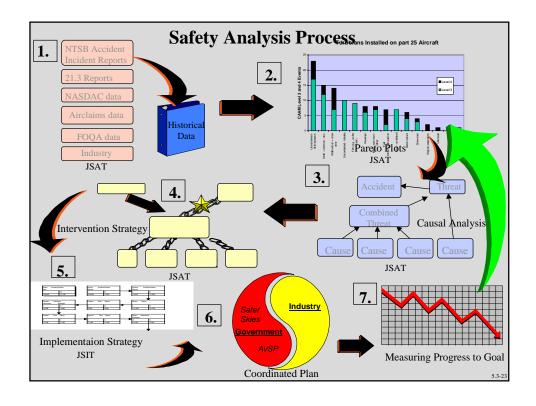




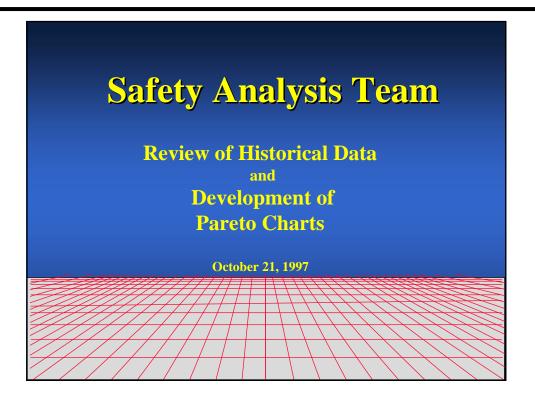






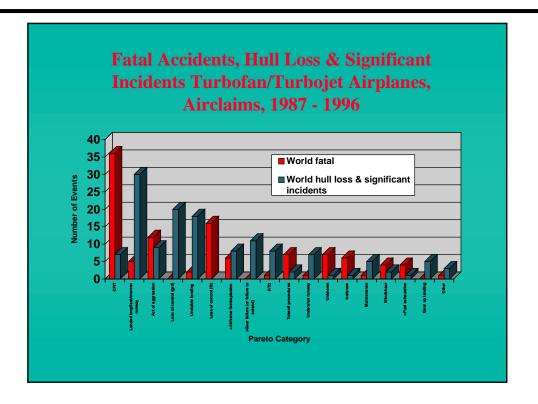


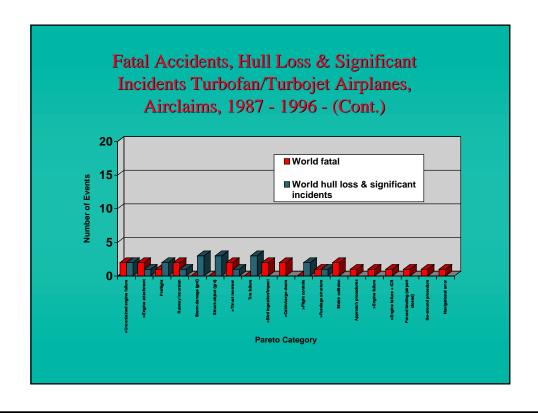
Kyle Olsen - ANM-104 Manager Page 2-6

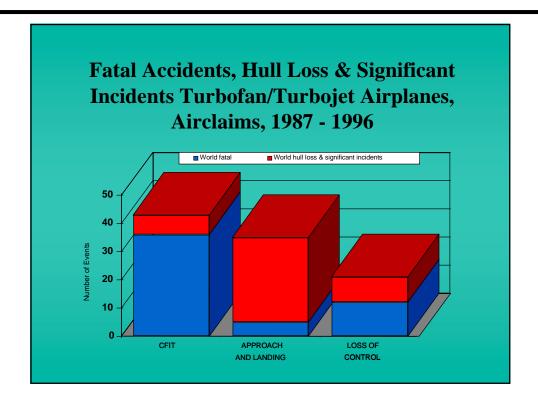


## Transport Aircraft

- Data sources
  - Primary source:
    - · Airclaims, 1987 1996
  - Clarifying sources:
    - NTSB accident and incident reports
    - Accident reports issued by foreign governments
    - · Manufacturers' data

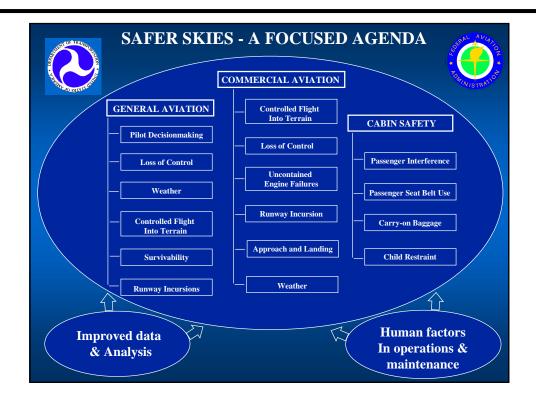




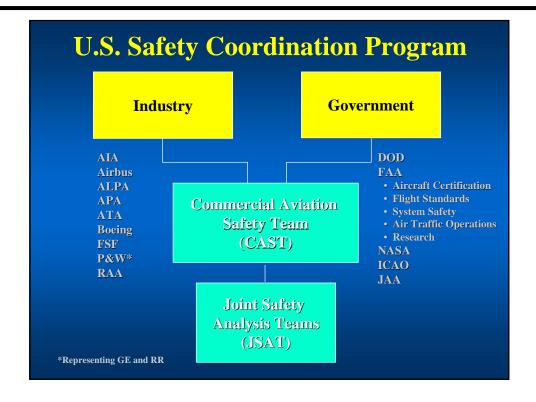


## Pareto Charts Developed for:

- Transport Aircraft
- Rotorcraft
- Small Aircraft
- Engines and APU's









## **JSAT CFIT Project Goals**

- Develop a Process
- CFIT Interventions

## **CFIT JSAT Members**

- ATA
- Boeing
- Boeing- DPD
- Airbus
- ALPA
- NASA

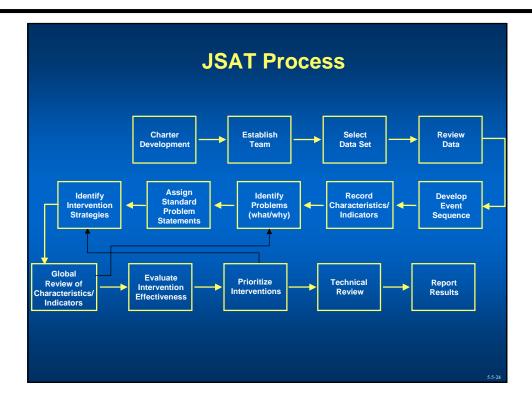
- FAA
  - AIR (ANM/ANE)
    - Engineer
    - FTP
    - HF
  - AFS (AEG/ANE)
  - AVN
  - ATC
- Facilitator

## **CFIT Data Set**

- 12 Accidents & Incidents
  - Different Models
  - Different Manufacturers
  - Cargo and Passenger events
  - Domestic and International
- · Report Quality was varied

## **JSAT Process**

- · Events Facts and Data
- Problems
- Interventions
- Implementation



## **Developed Event Sequence**

- Facts and data
  - pilot controller voice events
  - missed calls
  - problems
- · Time coded each event

#	Time	Event
1015	21:53:28	ATC issued ATIS information Sierra: Ceiling
		100' overcast, 1/2 mile visibility and fog
1016	21:53:28	F/O call 200' above minimums
1017	21:53:32	F/O calls ATC to report Marker Inbound
1018	21:53:33	F/O call out 100' above minimums
1019		F/O fails to call out "runway not in sight" at the
		minimums for the Decision Height

## **Develop Problem Statements**

- Problem statements
  - What went wrong
  - Deficiency definition
  - Potential reason
  - Something which happened or didn't happen

TIME	EVENT	PROBLEM
0:30:00	ACARS messages gives the flight crew a QFE of 29.23" and QNH of 29.42"	barometer falling swiftly and message was 30 minutes old
0:31:00	AAL Dispatch sent ACARS message that aircrew had been experiencing wind shear)	
0:32:00	ATIS received - 29.50 altimeter	barometer falling swiftly and message was 99 minutes old

# Assign Standard Problem Statements

#### Problem

- 1 FLIGHTCREW LACK OF ENGLISH LANGUAGE SKILLS
- 2 FLIGHTCREW FAILURE TO FOLLOW PROCEDURES (COMMUNICATIONS)
- 3 AIR TRAFFIC SYSTEM LACK OF STANDARDIZATION (APPROACH PLATES)

## **Identify Intervention Strategies**

- Intervention strategies
  - Suggested solutions
  - Things to do to prevent or mitigate the problem
  - Etc.

TIME	EVENT	PROBLEM	INTERVENTION	
0:30:00	ACARS messages gives the flight crew a QFE of 29.23" and QNH of 29.42"	barometer falling swiftly and message was 30 minutes old	provide real-time weather information	Datalink would provide best transfer
0:31:00	AAL Dispatch sent ACARS message that aircrew had been experiencing wind shear)			
0:32:00	ATIS received - 29.50 altimeter	barometer falling swiftly and message was 99 minutes old	provide real-time weather information	Datalink would provide best transfer

### **Intervention Effectiveness**

- POWER
  - Effectiveness of a specific intervention in reducing the likelihood that a specific accident would have occurred ("Perfect World")
    - Not at all effective > 1
    - Hardly any effect > 2
    - Slightly effective > 3
    - Moderately effective > 4
    - Quite effective > 5
    - Highly effective > 6
    - Completely effective > 7

## **Intervention Effectiveness**

(Continued)

#### CONFIDENCE

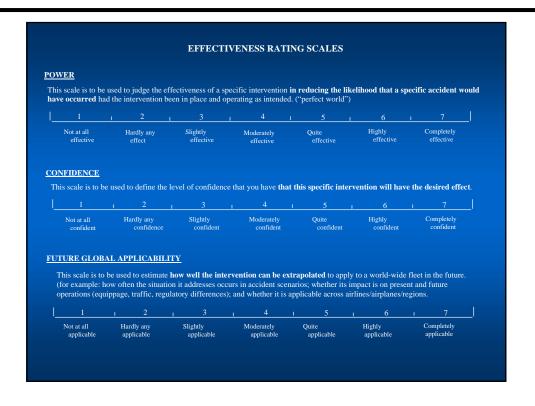
- Confidence that this specific intervention will have the desired effect
  - Not at all confident > 1
  - Hardly any confidence > 2
  - Slightly confident > 3
  - Moderately confident > 4
  - Quite confident > 5
  - Highly confident > 6
  - Completely confident > 7

## **Intervention Effectiveness**

(Continued)

#### FUTURE GLOBAL APPLICABILITY

- How well the intervention can be extrapolated to apply to a world-wide fleet in the future
  - Not at all applicable > 1
  - Hardly any applicable > 2
  - Slightly applicable > 3
  - Moderately applicable > 4
  - Quite applicable > 5
  - Highly applicable > 6
  - Completely applicable > 7

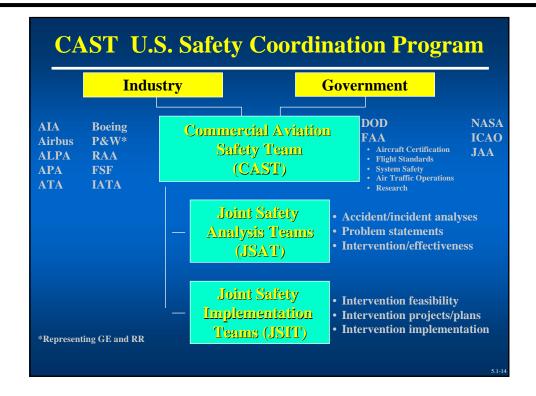


<b>xam</b>	ole: Effectiveness As	S	e		ssn	<b>1e</b>
		C	vera	ıll	Overall	
Int#	INTERVENTIONS	Р	C	A	Effect.	
	Manufacturers should install TAWS (EGPWS) in all new aircraft,	Ħ				
	airlines/operators should retrofit TAWS into the existing fleet and					
35		7	6	7	6.0	
	The aviation industry should develop and implement synthetic vision	Ħ	Ť	Ť		
85		7	6	7	6.0	
	Airlines/operators and regulators should ensure check list designs					
	prioritize critical items as recommended by NASA study, and that items					
134		7	6	7	6.0	
	Implement precision approach capability (glideslope guidance) for all	П	T			
	runways without established precision approach procedures (e.g. ILS,					
59	DGPS, etc.). (see 77)	6	6	7	5.2	
77	Eliminate non-precision approaches where possible. (see 59)	6	6	7	5.2	
	Airlines/operators should establish policies, parameters, and training to		T			
	recognize unstabilized approaches and other factors and implement a go-					
142	around gate system. (see FSF - "defined gates" p. 193) (see 116, 123)	7	5	7	5.0	
	Airlines/operators should implement procedures to ensure appropriate					
	crew pairing. (reference FSF corporate crew scheduling and fatigue					
24	evaluation.)	6	6	6	4.5	
	Manufacturers should ensure that all impending equipment failures or					
	inappropriate settings that may affect the safe operation of the flight are					
	properly annunciated to the flight crew by use of dual source sensing.					
45	(see 103, 138)	6	6	6	4.5	
	Manufacturers should improve the design for an error tolerant ground					
304	spoiler deployment system.	7	5	6	4.3	
	Install aural warning devices on aircraft to alert flightcrew of arrival at		ſ			
14	MDA/DH.	6	5	6	3.8	

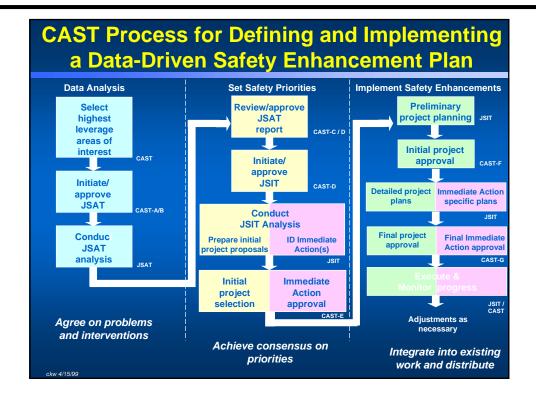
## **JSAT Process**

- Rigorous
- Events (accidents & incidents)
- Problems
- Interventions
- Validation
- Dynamic Change it if doesn't work

## **IMPLEMENTATION**









## **Feasibility Scales**

- Technical Feasibility
  - 3 Off-the-shelf technology, no development required
  - 2 Some development required, not currently in public use
  - 1 Major technology development effort required
- Financial Feasibility
  - 3 Less than \$100 M to implement
  - 2 Less than \$ 250 M to implement
  - 1 Greater than \$ 250 M to implement

## Feasibility Scales

(continued)

- Operational Feasibility
  - 3 Minimal change to entities within the operating environment
  - 2 Modest change to operating environment
  - 1 Major change to operating environment
- Schedule Feasibility
  - 3 Less than 2 years to full implementation
  - 2 Full implementation in 2-5 years
  - 1 Longer than 5 years to full implementation

## Feasibility Scales

(continued)

- Regulatory Feasibility
  - 3 No policy change
  - 2 Guidance change only (orders, handbooks, polity)
  - 1 Rule change
- Political Feasibility
  - 3 Positive push from political system
  - 2 Neutral
  - 1 Negative

Extracts From

CFIT Joint Safety

Implementation Team

# JSAT CFIT Interventions Project Areas

- 1. Aircraft Equipment
- 2. Airline Data Collection & Analysis
- 3. Approach Position Awareness
- 4. ATC Training
- 5. Charting
- 6. Flightcrew Training
- 7. Ground Equipment
- 8. Pilot/Controller Communication
- 9. Standard Operating Procedures

# JSAT CFIT Interventions Project Areas

- 1. Aircraft Equipment
  - Terrain Awareness and Warning System
  - Flight Deck Equipment Upgrade/Installation
  - FMS Installation/Maintenance
  - Aircraft Maintenance & Health Monitoring
- 2. Airline Data Collection & Analysis
  - Flight Operations Quality Assurance (FOQA)
  - Other

# JSAT CFIT Interventions Project Areas (Cont.)

- 3. Approach Position Awareness
  - Precision-Like Approach Implementation
  - Precision Approach Usage
  - Synthetic Vision
- 4. ATC Training
  - ATC CFIT Training
- 5. Charting

# JSAT CFIT Interventions Project Areas (Cont.)

- 6. Flightcrew Training
  - Training Approach & Missed Approach
  - Training CFIT Prevention
  - Training CRM
- 7. Ground Equipment
  - MSAW
  - Surveillance Radar
  - DME

# JSAT CFIT Interventions Project Areas (Cont.)

- 8. Pilot/Controller Communication
  - Pilot/ATC Communication Enhancement
  - Datalink Enhancement
- 9. Standard Operating Procedures
  - Operational Procedures for CFIT Prevention
  - Policies for CFIT Intervention
  - Maintenance Procedures

## Summary

## **CORNERSTONE**

- COMMITMENT
- DISCIPLINED/FOCUSED APPROACH
- COOPERATION WITH AVIATION COMMUNITY



# Worldwide Implementation is the Biggest Challenge

Many interventions are available/will be available soon

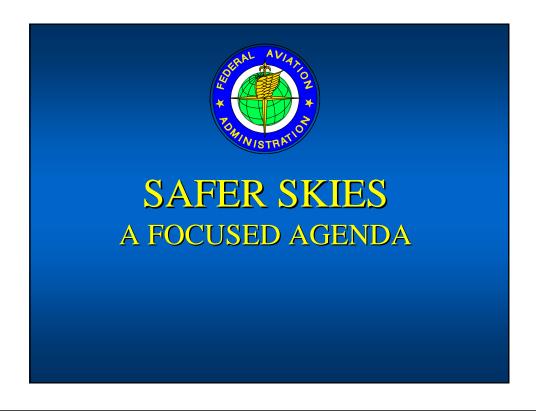
- •Enhanced Ground Proximity Warning Systems (EGPWS)
- •Flight Operations Quality Assurance Programs (FOQA)
- Precision-like approaches
- •Minimum Safe Altitude Warning Systems (MSAWs)
- •Mode C/TCAS
- •Flight Safety Training Aids
  - -Airplane Upset Recovery
- -CFIT
- -Turbulence Education
- -Windshear

Implementation must be worldwide to significantly reduce accidents

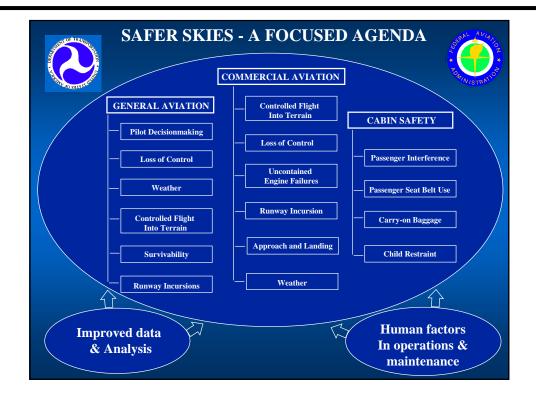
#### What We Must Do

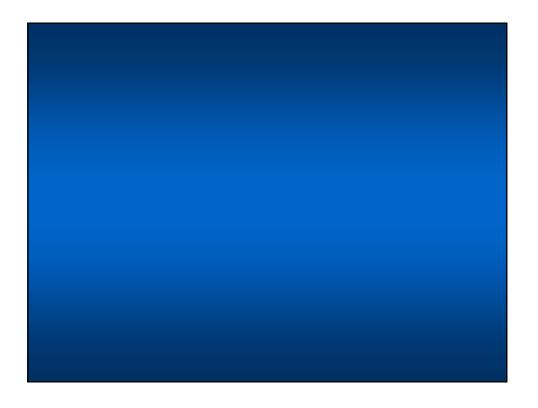
- Industry and Government must be committed to enhancing the safety of aviation by working together
- Our efforts must be data driven and integrated into a coordinated strategy
- We need to target our resources to work on the critical few interventions with the greatest potential toward achieving the goal of an 80% reduction
- The focus must be on prevention
- All participants in the global aviation system must work together
- We must communicate industry and government safety processes and initiatives





#### Los Angeles DER Recurrent Seminar-September 22, 1999 Safer Skies





#### Los Angeles DER Recurrent Seminar-September 22, 1999 Safer Skies

#### **Internet Links**

- Safer Skies
  - http://www.faa.gov
    - On the left side of the screen, under "faa highlights" click on "Safer Skies"
- SAT Report
  - http://www.faa.gov/avr/air/airhome.htm
    - Scroll down the left side of the page and click on "Safety Analysis Team Report"



#### What is a Field Approval?

- An FAA approval in the field for non-complex mods
  - Issue by the FSDO for a **major alteration** to a TC'd product
  - Executed on a Form 337
  - Block 3 signed by the inspector FAA Approval of the data
  - For one aircraft (model type and serial number)
- If the data has been approved, then FAA Approval is not needed No signature on Block 3

NOTE: Form 337 is also used to document a **major repair** 

- No alteration to the product No signature on Block 3
- Perform to an FAA Approved data

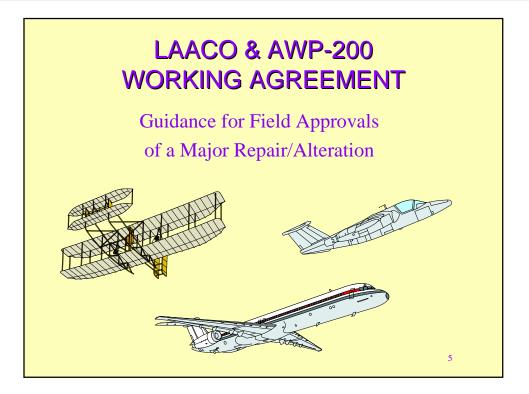
#### DEMAND ON FIELD APPROVALS

- Why?
  - To meet customer needs in a timely fashion
  - Reduces ACO admin. resources for a one-time STC
    - As a result, ACO redirects resources to other programs
  - FSDO has the authority but lacks of ACO/DER technical support
    - Implementation of LAACO/AWP-200 Working Agreement
    - Released on May 01, 1998
  - Partnership between ACO/FSDO/DER/Aviation Community

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# FIELD APPROVAL Vs. One-time STC

- Both are a major alteration (change) to type design
  - Performs to FAA Approved data
  - Meets all of affected regulations
  - For a specific aircraft model and serial number
  - Data may not be sufficient for duplication
  - Has the same weight and approval basis



# FIELD APPROVAL WORKING AGREEMENT

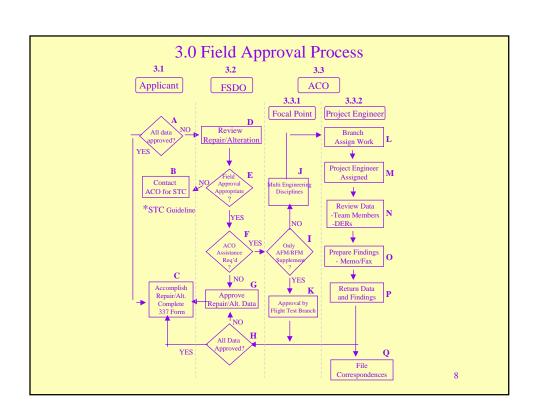
#### • Objectives:

- To provide guidance to ACO, FSDO, DERs, and aircraft modifiers/owners, and repair stations
- To identify key players roles & responsibilities
- To establish an upfront communications
- To achieve standardization on certification requirements
- To promote a working environment of trust, cooperation, and teamwork
- To meet customer needs in a timely & safe manner

## FIELD APPROVAL WORKING AGREEMENT

- Key Players
  - Applicant
  - FSDO Aviation Safety Inspector (ASI)
  - Aircraft Evaluation Group (AEG)
  - ACO Focal Point (FP)
  - ACO Project Engineer (PE)
  - Designated Engineering Representatives (DERs)

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#### Chinh Vuong - ANM-140L Page 3-4

# UPFRONT PLANNING/COMMUNICATION

- Communicate with the FSDO prior to the modification
- Reach an agreement on the certification approach
  - Define the FAA expectations and data requirements
- Contact ACO focal point(s), if needed, for assistance
- C Cube (Continuous Cooperation and Communication)



IS THE



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#### **DER's INVOLVEMENT**

- DO
  - Act as a LIASON between the applicant and FSDO/ACO
  - Develop and approve data within delegated functions (Major Repair/Alteration)
  - Make finding to applicable FARs
    - · Perform a compliance and installation review
    - Not a desk-top review
  - Mentor the inspectors regarding FAR compliance
    - If disagree on the approach, don't approve the data
    - Contact ACO Focal Points for further assessment

#### **DER's INVOLVEMENT**

- DO
  - Pertinent information on 8110-3
    - List specific regulations/areas that have been approved
    - List other areas/systems, <u>if known</u>, that need review/approval
  - Data submittals
    - Original 8110-3 to appointed ACO
    - Copy of 8110-3 and data to FSDO and modifiers (aircraft owners, repair stations)

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#### **DER's INVOLVEMENT**

- DON'T
  - Approve the type of inspection and inspection intervals
  - Grant field approval (sign Block 3 of Form 337)
  - Conduct conformity inspection (sign Block 6)
  - Return the aircraft back to service (sign Block 7)
  - List inappropriate FAR on 8110-3. For example:
    - 21.93 Acoustical Change
    - 21.95 Minor Change, 21.97 (Major Change)
    - 21.50 IFCA
    - 43.13, Appendix A
    - AC 43.13-1B or -2A

#### **DER's INVOLVEMENT**

- DON'T
  - Approve repair station standard shop procedures and processes such as:
    - · Personnel qualifications and training
    - Equipment/component handling
    - Receiving/inspecting/cleaning/shipping
    - NDT inspection procedures
    - Repair station Operating Spec. or IPM (Inspection Procedure Manual)
  - Approve generic process specs

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#### **DEFINITION of DATA**

Information that defines the configuration, system(s), and/or its operation

- Process specifications
- Stress analysis, Electrical load analysis, etc.
- Drawings, sketches, or photos
- Engineering Orders (EOs)
- Service Bulletins (S/Bs)
- Design Limitations Operation or Maintenance

#### APPROVED DATA

- Original Equipment Manufacturer (OEM) data
  - Structural Repair Manual (SRM)
  - Service Bulletins, Mod drawings
  - Repair processes & procedures
- DER approved data (Form 8110-3)
- Form 337s
- TCDS
- STC
- Airworthiness Directive (AD)
  - AMOC (Alternative Method of Compliance to the AD)

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#### PREVIOUSLY APPROVED DATA

- Can be used as a basis to obtain field approvals
  - If the data is applicable and eligible to the mod
- Consists of:
  - One-time STC approved data,
  - Previously approved data via 337s, or
  - SRM, mod drawings, etc.
- The acceptance is at the inspector's discretion
  - May vary from one to another based on their experience and comfort level

#### USE of PREVIOUS STC APPROVED DATA

- Written evidence must be provided if
  - STC holder allows any person to use the certificate to make a modification
  - Any person wishes to modify the product that is based on the STC
  - Example: \_\_\_\_\_ may hereby use STC SAxxxxxx to modify (aircraft, aircraft engine, propeller, or appliance)

Reference: FAA Notice 8110.69, dated 6/30/97 and Public Law 104-264, Section 403

 Flight Standards will impose the above requirement prior to granting field approvals if based on STC approved data

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#### ACCEPTABLE DATA

- Acceptable methods, techniques, and practices
  - AC 43.13-1B Aircraft Repair & Inspection
  - AC 43.13-2A Aircraft Alteration
- Previously approved 337's data
- ASTM, Mil-Spec, SAE, etc.
- Original Equipment Manufacturer (OEM) data
  - Service/Overhaul Manual
  - Illustrated Parts Catalog (IPC) & Maintenance Manual (M/M)
     NOTE: IPC & M/M are not FAA Approved documents
- U.S. Armed Services Tech Orders/Directives (TO/TD)

**NOTE:** Acceptable data can be used <u>as an approval basis</u> for obtaining FAA Approval

#### SHOP PRACTICES/PROCESSES

- Specific to a repair station and may vary from one to another
  - Equipment/component handling
  - Receiving/inspecting/cleaning/shipping
  - NDT procedures
- Do not contain engineering data/info that require ACO/DER approval
- May have been accepted by the FAA (AC 43.13-1B/-2A) or by industry

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#### PROCESS SPECIFICATIONS

- From the ACO perspective, a process spec must contain the following information:
  - A procedure/process on how to perform a repair
  - A spec/standard that a repair is being performed too
- Some process specs require FAA approval
  - Not industry accepted practices/specs
  - Specific to a repair/component
  - Not contained in and/or deviation to the OEM procedures
- ACO received policy in not approving **generic process specs**

#### **COMPLIANCE INSPECTION**

- ACO/DER/FSDO performs the compliance inspection to ensure the installation meet the regulations. For example:
  - Propeller clearance, FAR 23.925
  - Misc. Markings and Placards, FAR 23.1557
  - Warning, Caution, Advisory Lights, FAR 23.1322.
- Certain compliance inspections are reserved for the FAA
  - Emergency evacuation and exits, FARs 23.803 & 23.807
  - Width of aisle, FAR 23.815
  - Fire zone and flammable fluid protection, FAR 23.863
  - Delegated on a case-by-case basis to DERs

2

#### CONFORMITY INSPECTION

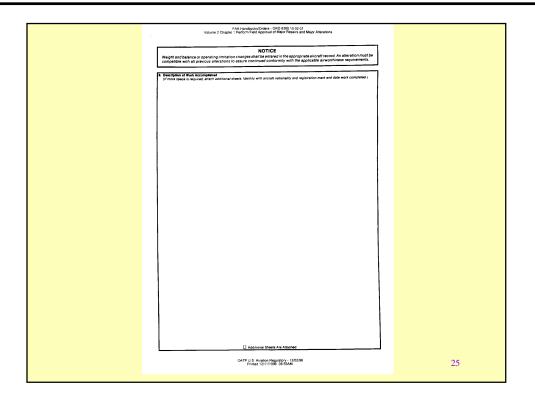
- A&P mechanic/IA/FSDO conducts the review to ensure
  - The part/equipment is installed IAW the drawing
  - The part/equipment is repaired IAW the repair data
  - The instrument/equipment is within the calibration date/data
  - The part/equipment has the correct part and serial numbers
  - The overall airworthiness of the aircraft

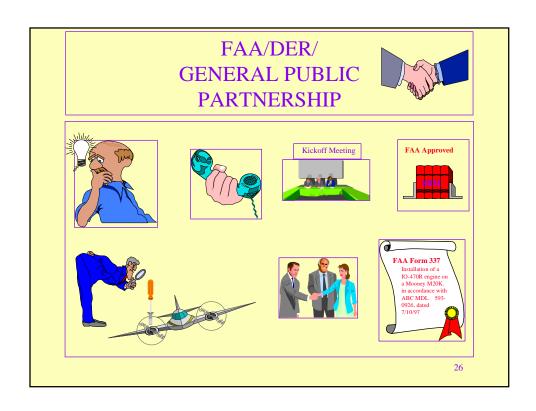
NOTE: IAW (In Accordance With)

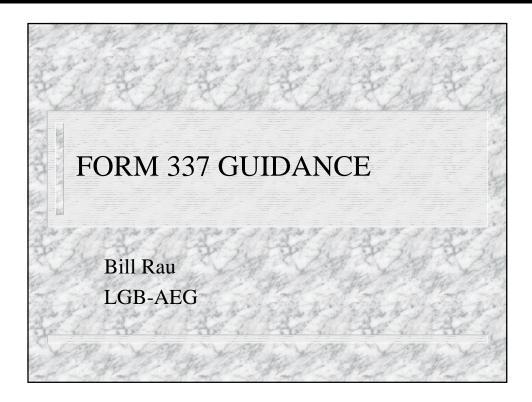
# FIELD APPROVAL PROJECT COMPLETION

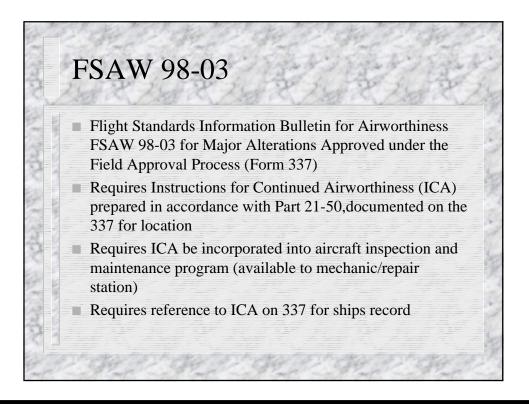
- DER data package is complete, thorough, and applicable to the modification
  - Form 337 is filled out except for
    - Block 3 (FSDO Approval), Block 6 (A&P Mechanic for conformity inspection), and Block 7 (IA return to service)
  - Block 8 of Form 337 must reference:
    - The 8110-3 or other approved means (SB, AD, etc.)
    - · AFM/RFM Supplement, if required
    - IFCA if different from OEM procedures
    - Installation instructions, wiring diagram, CMM, IPC, SRM, etc.
    - Any other documents that are used to accomplish the modification
      - AC 43.13-1B, Chapter xx, Page xx

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Unit Make				4. Unit Identification				5. Type Repair	Alteration	
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Date	ate Signature of Authorized Individual									
					um To Service					
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BY In	FAA Fit. Standards Manufacturer Inspector				thorization					
F.	-	Repair Station		Person Appri Canada Airw	wed by Transporthiness Grou	ort o				
Date of App	oval or Rejection	Certificate or Designation No.		Signature of	Authorized In	dividual				
FAA Form 3										









#### Form 337 Guidance

- FSAW 98-XX (Field Input) (ID of AEG's)
- Flight standards Information Bulletin for Airworthiness FSAW 98-XX Checklist for ICA for Major Alterations Approved under the Field Approval Process (Form 337)
- Checklist requires ICA prepared, documented on 337 in accordance with FSAW 98-03 and Part 21.50 and be incorporated into the aircraft inspection & maintenance program
- Checklist includes AMM description, removal/replacement, servicing, troubleshooting, wiring diagrams,IPC, periodic maintenance inspections and techniques,overhaul,tools & ALI

#### **Instructions for Continued Airworthiness**

- Instructions for continued Airworthiness must be available at the time of issue or reestablishment of the aircraft Standard Certificate of Airworthiness
- FAR 21.50(b) requires ICA <u>and changes</u> to ICA in accordance with FAR 25.1529 Appendix H

# Instructions for Continued Airworthiness (Continued)

- While Aircraft Maintenance Manuals (AMM) exist for aircraft, Changes to all of the ICA manuals is also necessary to address modifications
- ICA must be available to the aircraft operator for use by repairmen at any repair facility used by the operator (may be many)
- Having ICA info in ships records or operators files does not help repairman

# Instructions for Continued Airworthiness (Continued)

- Aircraft Mods/Changes need to be reflected in the operators AMM & Scheduled Maintenance Program
- AMM supplement needed for system description, operation, location illustration, removal/installation, and testing
- Illustrated parts Catalog (IPC) supplement needed for Line Replaceable Unit (LRU) part numbers

# Instructions for Continued Airworthiness (Continued)

- Wiring Diagram Manual supplement needed for changes
- Scheduled MX program supplement needed for periodic servicing, lubrication, replacement, overhaul, and test/checks
- Periodic scheduled inspections needed to check for integrity, security, wear, chaffing, etc.

# Instructions for Continued Airworthiness (Continued)

- Needed periodic structural inspections, methods, and standards for eddy current, ultrasonic, x-ray, etc
- Corrosion Prevention and Control Program (CPCP) and Supplemental Structural Inspection Document (SID) changes needed

Note: Mandated by AD for certain FAR 25 121 aircraft

■ Damage Tolerance requirements of FAR 25.571 must be maintained

# Instructions for Continued Airworthiness Typical Form 337 Shortcomings

- Handbook Bulletin for Airworthiness (HBAW) 98-12B
   Ops Spec for 135 Carriage of Cargo addresses
   deficiencies in cargo conversion field approvals,
   especially ICA
- HBWA 97-12A (amended) addresses deficiencies in cargo loading/handling and ICA
- Technical Standards Order (TSO) and Parts

  Manufacturing Approval (PMA) only addresses
  standards for <u>uninstalled equipment</u>. DER 8110-3 for
  approval of <u>data only</u> and typically does not include ICA
  compliance. Form 337 approves <u>entire installation</u>,
  including ICA

#### Shortcomings (Continued)

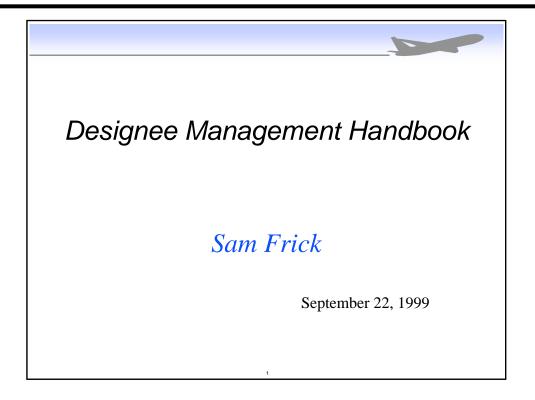
- TSOs & PMAs require Component Maintenance Manuals (CMM) which are shop overhaul manuals. May include installation manuals (generalized info and not aircraft specific)
- CMM data, installation manual data, DER data not applied to AMM, IPC, MX program, etc and supplementary data is not available for and with the aircraft for repair & MX
- Form 337 ICA filed away in ships records and not available to repairman

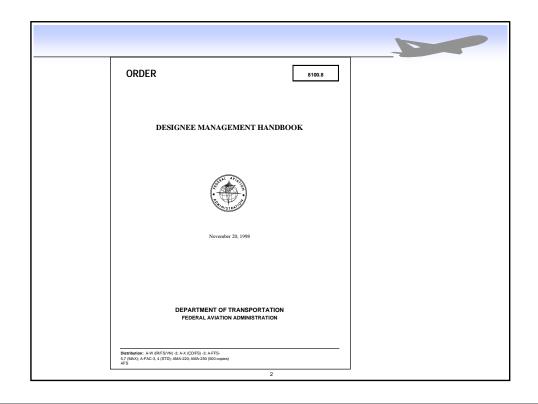
#### Master Minimum Equipment List

- Form 337 MMEL Considerations
  - Form 337 modifications can add operating systems to an aircraft
    - Everything installed on aircraft must work or provisions made for inoperative items
  - Part 91.213 allows for inoperative equipment as does Part 121.628 & 135.179

# Master Minimum Equipment List (Continued)

- Operators approved MEL is based on Master MEL (MMEL)
- Apply to appropriate AEG for Adding 337 items to MMEL
- Otherwise, everything installed by 337 must work
- Flight Crew Operating Manual (FCOM)
  New issue- Form 337 modifications can
  also affect this manual





Sam Frick - ANM-140L Page 5-1

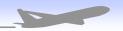


... "establish a unified national selection and appointment process for manufacturing and engineering designees."

#### Benefits of the New Process

- Efficiency
- Better guidance/documentation
- One System
- Standardization

Sam Frick - ANM-140L Page 5-2



### What Does the DST Selection and Appointment Process Look Like?

Key process improvements...

- Defined appointment cycle time
- Panel approach
  - Evaluation Panel decision/sign-off
  - Appeal Panel and defined process for appeals

continued...

## What Does the DST Selection and Appointment Process Look Like?

Key process improvements...

- Documentation
  - Standardized application package
  - Clearly defined and consolidated appointment criteria
  - Standardized applicant correspondence
  - Process Checklist
  - Knowledge based questionnaire
  - Designee Working Agreement



### What Does the DST Selection and Appointment Process Look Like?

New Key Players...

#### Appointment Process Coordinator (APC)

The FAA individual that initiates the formal selection, orientation, and appointment review process and coordinates all subsequent FAA actions

#### Advisor

An ASE (Aircraft Safety Engineer) or ASI (Aviation Safety Inspector) or FTP (Flight Test Pilot) assigned to the designee applicant and performs the initial evaluation and continuous oversight after appointment.

continued...



### What Does the DST Selection and Appointment Process Look Like?

New Key Players...

#### **>** Evaluation Panel (EP)

Two or more technical specialists (ASE, ASI, FTP,...) assigned to evaluate a designee applicant's qualifications against standards in order to determine appointment/candidacy/denial and delegated authority as appropriate

#### Appeal Panel

Two or more office managers and/or senior ASE/ASI/FTP assigned the task of determining if the Appointment Process was conducted properly in the event of an designee applicant's appeal of the FAA's decision

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#### **Process Overview**

Non-standard appointments...

- > Request for expanded delegations
  - For DERs, <u>all</u> requests to expand delegations will be reviewed by the FAA Advisor to determine whether an EP needs to be formed.
- Dual DER appointments
  - Any requests for dual DER appointments (company/consultant) will be reviewed by the FAA Advisor to determine whether an EP needs to be formed.

#### **Process Overview**

Non-standard appointments...

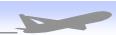
- Transfer appointments
  - When a designee changes residence or the employer moves to another ACO geographical area, the designee <a href="mailto:must re-apply to the new ACO">must re-apply to the new ACO</a>. The designee should notify the previous appointing ACO so that they can cancel their appointment and transfer any records to the new office. The new manager has the discretion to use the EP process for these requests or deny based on <a href="mailto:need.">need.</a>

<u>Note:</u> The object of a standard appointment process is to develop a level of confidence in the integrity of the system such that acceptance by all offices of an appointment decision is the norm.



The DST Charter Phase II will incorporate remaining designee management processes into the Designee Management Handbook

1



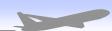
#### **TRAINING**

- 1. FAA Seminars
  - a) Orientation
  - b) Standardization/Initial Seminars
  - c) Recurrent Seminars
- 2. Specialized Training
  - a) Local office/workshops
  - b) Indoctrination
  - c) Other...
- 3. FAA Advisor Training
  - a) Flight Standards
  - b) Aircraft Certification



- 1. General (ratios, factors affecting oversight, workload, and ability to manage)
- 2. Responsibilities (counseling, feedback, coaching,...)
- 3. Supervisor/Monitoring/Tracking
  - a) DER Oversight
    - 1) Eight Key Interactions
    - 2) Performance Feedback
    - 3) Candidate Oversight
    - 4) Special oversight for repair and alterations
    - 5) Special oversight for Administrative and Management DERs
    - 6) Special oversight for Software DERs
    - 7) Executive level DERs
    - 8) FAA Response (acknowledge receipt of submittals)
  - b) DMIR/DAR/ODAR Oversight

1



#### RENEWAL

- 1. Duration of Appointments
- 2. DER Procedure
  - a) Candidate Procedure
  - b) Interaction Tracking Forms
  - c) DER Performance Evaluation Form
  - d) Evaluation Basis
- 3. DMIR/DAR/ODAR Procedure
  - a) Candidate Procedure
  - b) Activity Reports
  - c) ODAR Staff changes

#### RENEWAL (cont.)

- 4. Recommendation for Non-Renewal
- 5. FAA Renewal Action
- 6. DIN Update (and other file maintenance)
- 7. FOIA consideration

15



#### **TERMINATION**

- 1. Cause for Termination
  - a) Deceased
  - b) Retired
  - c) By Request
  - d) Change of Employment
  - e) Misconduct
  - f) Insufficient Activity
  - g) Lapse in Qualifications OR,

#### TERMINATION (cont.)

- 1. Cause for Termination (cont.)
  - h) Certificate Suspension, Cancellation, or Revocation
    - ♦ Lack of Care, Judgment, or Integrity
    - ♦ Lack of FAA need or ability to manage
    - ♦ Any other reason

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#### TERMINATION (cont.)

- 2. Notice of Action
- 3. Written Notification
- 4. Termination Appeal Procedures
- 5. FAA Coordination
- 6. DIN Update (and designee file update)

#### DESIGNEE BEST PRACTICES/GUIDANCE MATERIAL

- 1. Guidance Material
- 2. Electronic Guidance Material
- 3. Best Practices
- 4. Other Guidance Material and Forms
- 5. Designee Web Site (http://av-info.faa.gov/dst)

# CURRENT ISSUES IN INTERNATIONAL CERTIFICATION

FAA, International Airworthiness Programs Staff

#### INTERNATIONAL ISSUES

- ◆ Transformation of BAAs to BASAs
- ◆ Standardized designee notifications
- ◆ Global expansion v. FAA resources
- ◆ Extraterritoriality: International STCs
  - Decision Papers
- ◆ Certificate Transfers Outside the U.S.

Current Issues in 2 Jul
International Certification

# BILATERAL AVIATION SAFETY AGREEMENTS (BASAs)

- ◆ As of January 1996, the U.S. will no longer conclude Bilateral Airworthiness Agreements (BAAs)
- ♦ New format: BASA Executive agreement + Implementation Procedures

Exec.
Agreement

| Comparison of the property of the property

 Many countries seeking new agreements

Current Issues in

3

June 1999

International Certification

#### **BAA to BASA**

- ◆ 12 countries have signed BASA Executive Agreements
- ◆ 2 countries with Implementation Procedures for Airworthiness (IPAs);
   3 others under negotiation
- All old BAAs to eventually be renegotiated

http://www.faa.gov./avr/air/airhome.htm

Current Issues in International Certification 4

#### TECHNICAL ASSESSMENTS

- Before recommending any BASA for airworthiness, FAA conducts a technical assessment to assure comparable certification systems
- Long-term projects/commitment (Russia, Poland, Romania)
- Common deficiencies:
  - production oversight systems
  - management culture/authority

Current Issues in International Certification

#### "NEW" IPAs

- New documents address very specific issues that have been problematic in the past:
  - reciprocal acceptance of delegation systems
  - parts acceptability, including PMA imports
  - sharing of continued airworthiness info

Current Issues in International Certification 65

#### **Designee Notifications**

- ◆ IPAs commit to notification when designees are traveling to do work in another country
  - Letter from ACO to Civil Aviation Authority
    - Past practice for Designated Airworthiness Representatives (DAR) and Designated Manufacturing Inspection Representatives (DMIRs)
    - Now also in Designated Engineering Representatives (DER) handbook (Order 8110.37C. para. 609)
- FCAAs requesting feedback from designee visits.

Current Issues in International Certification 7

June 1999

# GLOBAL MANUFACTURING "Undue Burden"

- ◆ FARs preclude manufacturing activities outside the U.S. unless the FAA finds not a burden to administer
- More complex and diverse projects creating additional burden to the FAA
- Other authorities' systems (and BAAs) set up to support domestic products, not expansion of U.S. industry

Current Issues in

8

# GLOBAL MANUFACTURING Management Review via Decision Papers

 AIR policy since May 1997 to prepare decision papers for management when projects will involve activities outside the U.S.

(ACO/MIDO→Directorate →HQ)

 ACOs/MIDOs need to consider the ramifications of approvals (i.e.,STC, production approval, priority parts suppliers) that involve other States of Registry, offshore installations and manufacturing outside the U.S., etc.

Current Issues in International Certification 9

luna 1000

#### International STCs

- Bilateral agreements (except Canada) have not covered reciprocal acceptance of STCs.
- Very little policy. Data gathering and new guidance under development.
- Management reviewing projects through the decision paper process

Current Issues in International Certification 10

### **Problemmatic STC Practices**

- STC modification for aircraft model that does not have a U.S. type certificate
- Acceptance of foreign applications or "storefronts" for foreign manufacturers
- Multiple STC approval without obtaining PMA (foreign parts become SUPs)
- DARs performing airworthiness release functions for foreign-registered aircraft in foreign countries

Current Issues in International Certification 11

June 1999

## U.S. Obligations

◆ Per ICAO, for aircraft in commercial operation:

"All modifications and repairs shall be shown to comply with airworthiness requirements acceptable to the State of Registry. Procedures shall be established to ensure that the substantiating data supporting compliance with the airworthiness requirements are retained."

Annex 6, Part I, Para. 8.6

ICAO guidance further states that a major modification or repair to an aircraft should be accomplished in accordance with design data approved by, or on behalf of, or accepted by the airworthiness authority of the State of Registry. . .

### Los Angeles DER Recurrent Seminar-September 22, 1999 Current Issues in International Certification

## **Decision Papers**

- ♦ Why:
  - (1) Lack of standardization in the field
  - (2) Increased consideration of safety oversight responsibilities
- ♦ What is needed in a decision paper:
  - Issue
  - Supporting Information
  - FAA Analysis
  - Recommendation

Current Issues in International Certification 12

luna 1000

# International STC Projects . . .

# Points the FAA office must address for International STCs:

appropriateness of FAA involvement e.g. when the U.S. is not the State of Design (French airplane, modified in France, for a French operator), foreign military airplane, etc.
acceptance of modification by the foreign State of Registry
PMA application if the applicant is pursuing multiple STCs

\_\_ use of designees in accordance with FAA policy

Current Issues in International Certification

13

June 1999

# Los Angeles DER Recurrent Seminar-September 22, 1999 Current Issues in International Certification

Int	ernational STCs	·
delegations	s to other FCAAs	
notification	to foreign country if designees will	be sent there
flight testin	ng required outside the U.S., how?	
airworthine	ss release/return to service by the \$	State of Registry
continued	airworthiness issues for the STC	
		¥ 32
urrent Issues in ernational Certification	14	June 1999

# Certificate Transfers Outside the U.S.

- Policy under development regarding State of Design/continued airworthiness responsibilities.
- Per ICAO, should be recognized where there is a competent authority and a company capable of assuming continued airworthiness responsibility.
- If these conditions are not met, certificate action may be appropriate.
- Transfer provisions are now part of BASA IPAs. Commit FAA to a process of notification and coordination with the other CAA prior to any final commercial action.

Current Issues in International Certification

### Los Angeles DER Recurrent Seminar-September 22, 1999 Current Issues in International Certification

## **FUTURE??**

- ◆ FAA not staffed to support global expansion of U.S. industry and other authorities cannot support FAA's needs.
- ◆ FAA should carry out its regulatory mission within the scope of what the U.S. is authorized and in accordance with ICAO requirements.
- Need industry awareness and support

Current Issues in International Certification 16

June 1999



Los Angeles Aircraft Certification Office

# RISK MANAGEMENT

LAACO FLIGHT TEST

# Aircraft Certification Service Flight Safety Program

- FAA Order 4040.26
- Implemented 1 August 1997
- Risk management is an integral element of the order

## **TIA Signature**

- TIA to be signed by <u>ACO Manager</u>, <u>Flight</u> <u>Test Manager</u>, or <u>their designees</u>
- Indicates risk assessment has been done and mitigating procedures have been established, as necessary
- · Conscious acceptance of the residual risks
- Formally documents <u>ACO management</u> oversight of risk assessment

### Risk Assessment

- A process, usually iterative, for identifying and mitigating risk
- Formalized in a meeting prior to TIA issuance

### Elements of Risk Assessment

- Identify Risks
- Assess Risks
- Assign Risk Mitigation Procedures
- Implement Controls
- Supervise

# Risk Assessment Safety Review

- · Dedicated safety review meeting
- Reviews flight test plan with emphasis on flight test risks
- Non-project personnel may be included to provide knowledge of test methods, aircraft type and general test experience otherwise beneficial to the project team

## **Participants**

- Project engineer(s), flight test pilot, and flight test engineer
- Manufacturing Inspection representative
- Flight Test Manager or designated alternate
- Applicant's representative(s)
- · DER pilot, where appropriate
- AEG pilot
- Outside observer (for complex projects or unique safety issues)

# Suggested Safety Review Meeting Guideline

- · Description of aircraft configuration
- Review applicant's pre-TIA ground and flight tests, including:
  - "open" certification tests not pre-flown by the applicant
  - pre-TIA flight test report
- Review operating and airspeed limitations
- Review any required operating procedures

# Suggested Safety Review Meeting Guideline (cont'd)

- Review certification test program with emphasis on requirements that may present increased risk
- Assess hazards addressing potential risks
- Establish risk alleviation procedures to be used during certification tests

## Risk Management Issues

- Aircraft Configuration
  - CONFORMITY
  - May become even more important when project delays occur
  - Review of Part I of the TIA after project delay may require need for reconformity
- Successful completion of the conformity inspection must be communicated to flight test personnel prior to commencement of testing

### Reassessment of Risk

- Underestimated risk during testing
- Discontinue test event
- · Reassess risk and alleviation measures
- Define any additional operating limitations
- Approval to refly event by appropriate pilot or Manager

# Change of Test Profile During Testing

- Where changes or additions add medium or high risk tests
  - Approval to fly must be obtained
- LAACO risk management process will be used to obtain approval

# Documentation for Low Risk Tests

- Risk statement inserted in TIA after General Description of project
- Signature of Flight Test Manager or Project Pilot required
- May be based on "Attachment A" table in LAACO Risk Assessment Memo

TYPE INSPECTION AUTHORIZATION (NAME OF PROJECT )		PROJECT NUMBER: PAGE XX OF	ST0000LA-A XX
GENERAL			
General description of the project goes here			
TIA RISK ASSESSMENT			
The risks associated with the testing described RISK ASSESSMENT TABLE FOR LOW RIS restrictions and limitations set forth in the table	K TESTS. It is expected that the risks as	ssociated with the testing v	
RISK ASSESSMENT TABLE FOR LOW RIS	K TESTS. It is expected that the risks as	ssociated with the testing v	
RISK ASSESSMENT TABLE FOR LOW RIS restrictions and limitations set forth in the table Risk Assessment Index:B	K TESTS. It is expected that the risks as	ssociated with the testing v	
RISK ASSESSMENT TABLE FOR LOW RIS restrictions and limitations set forth in the table	K TESTS. It is expected that the risks as	ssociated with the testing v	

# Documentation for Medium or High Risk Tests

- Two sections added to the TIA after the General Description section
- Risk statement inserted in the TIA after General Description of project
- TIA Risk Assessment should show the significant risk considerations

# Documentation for Medium or High Risk Tests (cont'd)

- See list of tests identified as medium or high risk from LAACO Risk Assessment memo
  - List is not all inclusive; provides suggestions
- TIA Operating Limitations/Risk Mitigation
  - will document limitations or operating procedures required to mitigate the identified risks
- Management cognizance is via signature of Flight Test Manager in the TIA

### Los Angeles DER Recurrent Seminar-September 22, 1999 Risk Assessment for TIA's

### **EXAMPLE FOR HIGH OR MEDIUM RISK TESTS**

TYPE INSPECTION AUTHORIZATION (NAME OF PROJECT )

PROJECT NUMBER: ST0000LA-A PAGE XX OF XX

#### GENERAL

General description of the project goes here...

#### TIA RISK ASSESSMENT

The following significant risk factors have been identified and procedures/limitations integrated to reduce or mitigate to the extent possible the level of risk expected during the following tests described in this TIA:

- Stalls and handling qualities tests with ice shapes installed on unprotected surfaces.
  - Ice shapes may generate unacceptable and unpredictable flight characteristics. To mitigate the risk, an
    incremental approach will be used where representative shapes are built up until the final desired shapes
    can be installed for the certification tests.
  - Test results will be evaluated by the FAA flight test crew prior to conducting FAA testing. This
    evaluation should include the results of representative testing at the extremes of the c.g. and throughout
    the speed envelope to ensure that unexpected characteristics will not occur with the final shapes
    installed.
  - Performance will be degraded with ice shapes installed. Review of available runway and climb gradient will, therefore be required.
  - And so on, based on the <u>Certification Team's</u> assessment of the criticality of the proposed tests.

*Flight Test Branch Manager:		
	Signature	Date

### EXAMPLE FOR HIGH OR MEDIUM RISK TESTS

<u>TIA OPERATING LIMITATIONS / RISK MITIGATION</u> (Sample typical examples of limitations that might be applied)

- All test flights with shapes installed will be conducted in DAY VFR conditions.
- The Company PIC and FAA Test Pilot will in conjunction with the FAA
  Flight Test Engineer review and agree on the runway lengths and climb
  gradients required for the weight to be flown on each takeoff.
- A continuous weight and balance record will be maintained based on an initial actual weighing with equipment and test crew aboard.
- Ice shape handling qualities will not be conducted below 8,000 feet AGL.
- Emergency egress procedures must be reviewed prior to each flight.
- Continuous communication will be established and maintained between the test aircraft and the ground support test crew.

18A Manufacturing Inspection items go here

18B Flight Test items go here

<sup>\*</sup> May be signed by the Flight Test Pilot for "medium risk" tests

## Los Angeles DER Recurrent Seminar-September 22, 1999 Risk Assessment for TIA's

### Alternate Means

- For companies with well developed risk management process in place:
  - FAA will review their risk document to assess acceptability
  - FAA flight test would expect to participate as an integral part of their risk management process

TYPE INSPECTION AUTHORIZATION	PROJECT NUMBER:ST0000LA-A
(NAME OF PROJECT )	PAGE X X OF XX
<b>GENERAL</b> General description of the project goes here	
TIA RISK ASSESSMENT	
	ram of "The Chance Vought Company" as defined in Document XYZ-123 will be with the flight testing specified in this TIA for the F4U Corsair.
*Flight Test Branch Manager :	onature Date
	9
*May be signed by the Flight Test Pilot for medium or low	v risk tests.
*May be signed by the Flight Test Pilot for medium or low  TIA OPERATING LIMITATIONS (Sample typ	vrisk tests.  pical examples of limitations that might be applied)
*May be signed by the Flight Test Pilot for medium or low TIA OPERATING LIMITATIONS (Sample typ All flights will be conducted utilizing the	or isk tests.  Dical examples of limitations that might be applied)  restrictions/limitations from the Chance Vought Flight Safety document.
"May be signed by the Flight Test Pilot for medium or low TIA OPERATING LIMITATIONS (Sample typ All flights will be conducted utilizing the	or isk tests.  Dical examples of limitations that might be applied)  restrictions/limitations from the Chance Vought Flight Safety document.
*May be signed by the Flight Test Pilot for medium or low  TIA OPERATING LIMITATIONS (Sample typ	or risk tests.  bical examples of limitations that might be applied) restrictions/limitations from the Chance Vought Flight Safety document.  nch will accomplish the following:
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# CHANGES in REGULATIONS, ORDERS, ADVISORY CIRCULARS, and OTHER GUIDANCE MATERIAL

Robert M. Stacho LAACO, Systems Branch

### Overview

- Regulatory Process/Information
- Final Rules/NPRMs
- Orders
- Notices
- Advisory Circulars

### Regulatory Process

### • Aviation Rulemaking Advisory Committee (ARAC)

- ARAC Charter, interested parties to develop the new regulations or changes to existing regulations
- Current activities on ARAC bulletin board
  - Web site at http://armbbs.faa.gov
  - Dial up instructions http://www.faa.gov/avr/arm/arac
- Bulletin board provides
  - · Listing of meetings
  - · Committee information
  - · Working group information
  - · Message board

### **Regulatory Information**

#### • FAA Regulatory Web Site

- http://www.faa.gov/avr/arm/nprm/nprm.htm
- Web site is current, updated as regulatory actions occur
- Provides final rule and NPRM
- Contain regulatory information from 1996 to current

### FAA Regulations

- Aircraft Certification Home Page http://www.faa.gov/avr/air/airhome.htm
- Rotorcraft Directorate Home Page
  - · Federal Aviation Regulations
- Designee and Delegation Web Page -
  - · http://av-info.gov/dst

### Part 25 Final Rules

- Amdt. No. 25-98, Revision of Gate Requirements for High-Lift Device Controls. effective 3/10/99
  - Revise the requirements concerning gated positions on the control used by the pilot to select the position of an airplane's high-lift devices.
  - Harmonizes these standards with those being adopted by the JAA.
- Amdt. No. 25-97 Braked Roll Conditions, effective 6/26/98
  - Adds a new design standard that requires that the airplane be designed to withstand main landing gear maximum braking forces during ground operations.
  - Eliminates differences between the FARs and JARs

### Part 25 Final Rule

- Amdt. No. 25-96, Fatigue Evaluation of Structure effective 4/30/98
  - Amends the fatigue requirements for damage-tolerant structure
    - to require a demonstration using sufficient full-scale fatigue test evidence that widespread multiple-site damage will not occur within the design service goal of the airplane; and
    - inspection thresholds for certain types of structure based on crack growth from likely initial defects
- Amdt. No. 25-94, Technical Amendments and Other Miscellaneous Corrections - effective March 25, 1998
  - Amends 25.107, 25.111, 25.119, 25.233, 25.349, 25.481, 25.807, 25.832, 25.903, 25.1185, and Appendix F, Part II are effected.

### Part 25 Final Rule-

- Amdt. 25-93, Revised Standards for Cargo or Baggage Compartments in Transport Category Airplanes, effective February 17, 1998
  - Upgrade the fire safety standards for cargo or baggage compartments in certain transport category airplanes by eliminating Class D
  - Compartments that can no longer be designated as Class D must meet the standards for Class C or Class E compartments
  - Class D compartments in certain transport category airplanes manufactured under existing type certificates and used in passenger commercial service must meet the fire or smoke detection and fire suppression standards for Class C compartments by early 2001
  - Class D compartments in certain transport category airplanes manufactured under existing type certificates and used **only for the carriage of cargo** must also meet such standards or the corresponding standards for Class E compartments by that date for such service.

### Part 25 Final Rule-

- Amdt. No. 25-92, Improved Standards for Determining Rejected Takeoff and Landing Performance, effective 3/20/98
  - Revise the method for taking into account the time needed for the pilot to accomplish the procedures for a rejected takeoff
  - takeoff performance be determined for wet runways; and require that rejected takeoff and landing stopping distances be based on worn brakes.
  - Harmonize with revised standards of the JAR-25. Not being applied retroactively

### Part 23, 25 and 33 Final Rule

- Amdt.No.'s 23-53, 25-95, and 33-19, Rain and Hail Ingestion Standards, effective April 30, 1998
  - Revise certification standards for rain and hail ingestion for aircraft turbine engines.
  - address engine power-loss and instability phenomena attributed to operation in extreme rain or hail that are not adequately addressed by current requirements.
  - harmonize these standards with rain and hail ingestion standards being amended by the Joint Aviation Authorities (JAR).

# Part 29 Final Rule with Request for Comments

- Amdt. No, 29-44, Transport Category Rotorcraft Performance, effective November 17, 1999
  - Makes several nonsubstantive clarifications and corrects various nonsubstantive errors in the performance requirement sections. Corrects final rule published in May 10, 1996.
  - Comments requested by September 20, 1999

### **Part 27 Final Rule**

- Amdt. No. 27-37, Normal Category Rotorcraft Maximum Weight and Passenger Seat Limitation, effective October 18, 1999
  - Increases the maximum weight limit from 6,000 to 7,000 pounds and adds a passenger seat limitation of nine.
  - These regulations are revised, Section 27.1, .2, 610, .806, .807, .1027, .1185, .1187, .1305, and .1337.

### Parts 27 and 29 Final Rule

- Amdt. No.'s 27-36 and 29-43, Rotorcraft Load Combination(RLC) Safety Requirements, effective October 5, 1999
  - Revises the safety requirements for RLC's and provide an increased level of safety in the carriage of humans. (FAR 27.25, 27.865, 29.25, 29.865)
  - Provides harmonized international standard.

### Part 27 and 29 Final Rule

- Amdt. No.'s 27-35 and 29-42, Harmonization of Miscellaneous Rotorcraft Regulations, effective September 8, 1998
  - The amendment adds a 1.33 fitting factor structural strength requirement to the attachment of litters and berths, clarifies and added burn test requirements for electrical wiring, and added a requirement for a cockpit indication of autopilot operating mode for certain autopilot configurations.
  - Revises 27.625, .785, .975, .1329, and .1365
  - Revises 29.625, .785, .923, .975, .1329, .1351, and .1359

### Part 34 Final Rule

- Amdt. 34-3, Emission Standards for Turbine Engine Powered Airplanes, effective February 3, 1999
  - Revises the emission standards for turbine engine powered airplanes to incorporate the current standards of the ICAO for gaseous emissions of oxides of nitrogen and carbon monoxide.

### NPRM - Aging Airplane Safety Parts 119, 121, 135, 183

- Aging Airplane Program for multiengine airplanes operated under Parts 119 and 135
  - Aging Aircraft Safety Act of 1991
  - proposes damage-tolerance analysis and inspection techniques be applied to older airplane structures that were certificated before such techniques were available
  - Allows DARs to conduct certain record reviews and inspections
  - Withdraws NPRM 93-5
  - Comment period was reopened, now closes October 18, 1999
  - Available at FAA web page; http://www.faa.gov/avr/arm/nprm/nprm.htm
  - Frederick Sobeck, (202) 267-7355

### NPRM-Part 36 Noise Certification Standards for Propeller-Driven Small Airplanes

- The FAA is proposing changes to the noise certification standards for propeller-driven small airplanes.
- Harmonize the FAR and JAR requirements for propeller-driven small airplanes.
- · Comment Period Closed
- Mehmet Marsan, AEE, (202) 267-7703.

### NPRM - Part 25 Braking Systems Airworthiness Standards

- Harmonizes US Standards with European Standards (JAA)
- Proposed revisions to 25.731, wheels, and 25.735, brakes and braking systems.
- Comment Period Closes November 8, 1999.
- Mahinder Wahi, ANM-112, (425) 227-2142

### NPRM - Part 25 Landing Gear Shock Absorption Test Requirements

- Harmonizes US Standards with European Standards (JAA)
- Proposed revisions to 25.473, landing load conditions and assumptions, and 25.723, shock absorption tests.
- Comment Period Closes October 18, 1999.
- James Haynes, ANM-115, (425) 227-2131

# NPRM - Part 27 and 29 Harmonization of Critical Parts Rotorcraft Regulations

- Amend the airworthiness standards in Parts 27 and 29
  - Define critical parts
  - Require a critical parts plan to establish procedures that would require the control of the design, substantiation, manufacture, maintenance, and modification of critical parts.
  - Comment Period Closed
- Carroll Wright, Rotorcraft Directorate, (817) 222-5120.

### **Orders Issued/Revised**

- 8100.8 Designee Management Handbook
- 8110.37C DER Handbook
- 8110.42A Parts Manufacturer Approval Procedures
  - New format for PMA supplement

### **Notices Issued**

- Notice 8110.71-Guidance for the Certification of Aircraft Operating in High Intensity Radiated Field Environments
  - Provides requirements for HIRF certification until harmonized FAR/JAR rule is issued.
  - Requires ACOs to issue special conditions on a case-by-case basis
  - Requirements based on those adopted by the Electromagnetic Effects Harmonization Working Group ARAC
  - http://www.faa.gov/avr/air/air100/n8110\_71.pdf
- Notice 8110.72 Structural Designated Engineering Representatives Approvals of Alternative Methods of Compliance to Airworthiness Directives and AD Mandated Repairs
  - Allows certain manufacturer's structural DERs to approve alternate methods of compliance

### **Notices Issued**

- Notice 8110.73 Implementation of TSO for fasteners, bearings, and seals
  - Provides guidance on the implementation plan for TSO-C148, aircraft mechanical fasteners, TSO-C149, aircraft bearings, and TSO-C150, aircraft seals.
- Notice 8110.76 DER to Designated Inspection Representative Notification Process
  - Allows DERs to process 8120-10, Request for Conformity, without ACO review
  - Must have coordinated up-front conformity plan that prescribes which RFCs may be processed without FAA involvement
  - Plan defines tracking and paperwork requirements and methods for resolving unsatisfactory findings

### **Notices Issued**

- Notice 8110.77 Guidelines for the Approval of Field-Loadable Software
  - Applicable to TC, ATC, STC, TSO
  - Additional policy being developed to address PMA
  - Supplements DO-178B
  - www.faa.gov/avr/air/air100/sware/sware.htm
- Notice 8110.78 Guidelines for the Approval of Software Changes in Legacy Systems Using RTCA DO-178B
  - Clarifies requirements in 178B
  - Provides guidance on the application of DO-178B to software changes made to systems developed under 178 or 178A
  - Available at www.faa.gov/avr/air/air100/sware/sware.htm

### **Notices Issued**

- Notice 8110.79 Guidelines for the Approval of Field-Loadable Software by Finding Identicality through the Parts Manufacturer Approval Process
  - Provides guidelines for approving Field-Loadable software through PMA
  - Limited to identicality with and without a licensing agreement
  - Does not cover test and computations
- Notice 8110.81 Guidelines for the Software Review Process
  - Objectives of the software review process
  - Interaction between the software review process and software life cycle
  - Additional considerations for the software review process
  - Preparing, conducting, and documenting the software review

### **Notices Issued**

- Notice 8110.80 The FAA and Industry Guide to Product Certification
  - FAA/Industry Certification Process Improvement (CPI) process
  - Provides a structured approach to the project management of a certification program
  - Emphasis on upfront communication and planning
  - Strongly encouraged for TC programs and significant STC projects
- CPI Guide FAA and Industry Guide to Product Certification dated January 25, 1999
  - Available/download from the FAA Designee and Delegation web page

### **Advisory Circulars Issued/Revised**

- 183.29GG Consultant DER Directory
  - Provides listing of all consultant DERs
- 21-40 Application Guide for Obtaining a Supplemental Type Certificate
  - Provides information and guidance regarding procedures for obtaining a supplemental type certificate for typical modification projects.
  - http://www.faa.gov/avr/air/acs/achome.htm
- 23.1419-2A, Certification of Part 23 Airplanes for Flight in Icing Conditions.
  - Provides guidance and information on compliance with the ice protection requirements of Part 23.

### **Advisory Circulars Issued / Revised**

- 23.1311-1A Installation of Electronic Displays in Part 23 Airplanes
  - Acceptable means of showing compliance applicable to the installation of electronic displays in Part 23 airplanes
- 23.1309-1(C) Equipment, Systems, and Installations in Part 23 Airplanes
  - Provides guidance and information for an acceptable means for showing compliance with the requirements of Sec. 23.1309(a) and (b) (Amendment 23-49) for equipment, systems, and installations in Title 14 CFR Part 23 airplanes.
- 25.629-1A Aeroelastic Stability Substantiation of Transport Category Airplanes
  - Compliance with the provisions of part 25 of the dealing with the design requirements for transport category airplanes to preclude the aeroelastic instabilities of flutter, divergence and control reversal.

### **Proposed Advisory Circulars**

- 25-XX, Certification of Transport Airplane Mechanical Systems
  - Provides methods acceptable for showing compliance with the provisions of subparts D and F of 14 CFR part 25 regarding the type certification requirements for transport airplane mechanical systems.
- 25-XX, Certification of Transport Airplane Electrical Equipment Installations
  - Guidance on compliance with the certification requirements for transport airplane electrical systems and equipment installations.
- 25-XX, Certification of Transport Airplane Structure
  - Showing compliance with the provisions of subparts C and D of 14 CFR part 25 regarding the type certification requirements for transport airplane structure.

### **Proposed Advisory Circulars**

- 25.1419-1X, Certification of Transport Category Airplanes for Flight in Icing Conditions
  - Guidance for certification of airframe ice protection systems on transport category airplanes.
- 25.803-1A, Emergency Evacuation Demonstrations
  - Provides guidance on compliance with FAR concerning (1) conduct of full-scale emergency evacuation demonstrations, and (2) use of analysis and tests in lieu of conducting an actual demonstration.
- 23-XX-26, Powerplant Guide for Certification of Part 23 Airplanes
  - Provides guidance on compliance with 14 CFR part 23, subpart E, -powerplant installation in normal, utility, acrobatic, and commuter category airplanes.
     Consolidates existing policy documents and certain AC's that cover specific paragraphs of the regulations, into a single document.

### **Proposed Advisory Circulars/Revisions**

- 20-DFDRS-2, Airworthiness and Operational Approval of Digital Flight Data Recorder Systems
- 34-1, Fuel Venting and Exhaust Emissions Requirements for Turbine Engine Powered Airplanes
  - Provide section-by-section guidance on 14 CFR Part 34.

### **Proposed Advisory Circular Revisions**

#### AC 91-MA

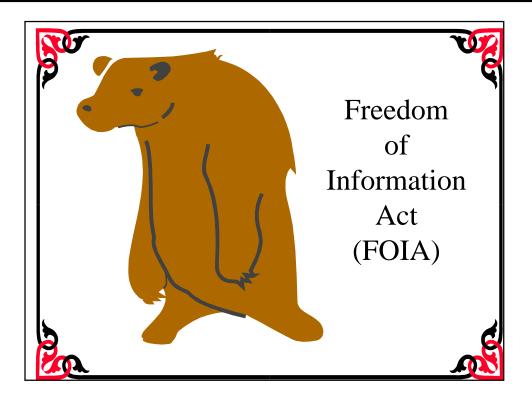
 Provides guidance for manufacturers and operators in developing continued structural integrity programs of small transport and commuter airplanes

#### AC120-xx

 Provides guidance to aging aircraft records review to satisfy the requirements of the Aging Airplane Safety final rule

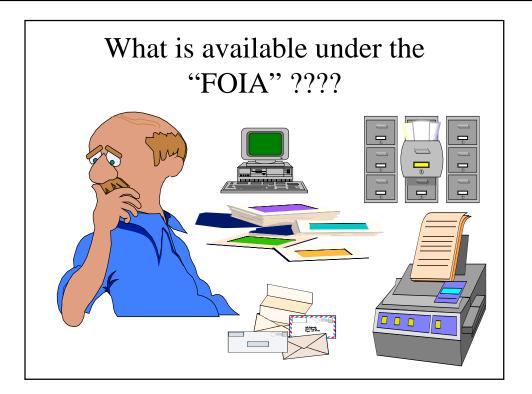
#### AC 27-1A & AC 29-2B - Proposed Changes

- Provides guidance as to an acceptable means of accomplishing the requirements of a proposed rule on the subject of requirements for a <u>critical parts plan</u> for normal and transport category rotorcraft.
- Guidance to comply with the proposed rules on the subject of normal and transport category rotorcraft load combination safety requirements and on the subject of normal category rotorcraft maximum weight and passenger seat limitation.



# What is the Freedom of Information Act (FOIA)?

- The FOIA is a federal statute which affords any person the right to obtain federal agency records, unless the records (or a part of the records) are protected from disclosure by any of the nine exemptions contained in the law.
- On October 2, 1996, President Clinton signed into law the Electronic Freedom of Information Act Amendments of 1996 (E-FOIA).



### **Basic Rules of Thumb**

- Any written request from an outside (non-FAA)
   Source for material currently in the FAA's
   "custody & control" is processed as a FOIA
   request (exceptions: requests from Congress or
   routinely released data such as FAA Orders,
   Directives, etc.)
- Items which can be requested (not necessarily released): Correspondence, ACSEP reports, TC data, STC data, PMA data, TSO data, Safety Recommendations, Records of Telephone conversations/Meetings, e:mail, Designee data, Electronic data submissions, etc.

### FOIA exemptions cover such material as:

- (1) matters of national defense and foreign policy;
- (2) internal personnel rules and practices;
- (3) information exempted by other statutes;
- (4) trade secrets, commercial or financial information (confidential business information);
- (5) privileged interagency or intra-agency communications;
- (6) personal information affecting an individual's privacy;
- (7) records compiled for law enforcement purposes;
- (8) records of financial institutions; and
- (9) geological and geophysical information concerning wells.

# **Exemption Four:**

- Documents containing trade secrets are exempt from disclosure.
- Commercial or financial information that is privileged or confidential are also exempt.
- Distinction between *Required* as opposed to *Voluntary* Submissions.

## Common FOIA Misconceptions:

- FOIA is a mechanism to seek answers to specific questions of program policy, appeal adjudication of program or administrative decisions, or to provide input into FAA program decision making. -- NO It's Not!!
- FOIA is a way to automatically obtain your competitor's technical data. -- NO it's Not!!!
- Obtaining a *Patent* from U.S. Patent & Trademark
   Office (USPTO) will always prevent a competitor from
   using your proprietary data. Therefore, you don't have
   to send in an objection when notified of a FOIA request.
  - -- Please Be Careful!!! Coordinating with USPTO does not fall within FAA's responsibilities.

### **CAUTION**

- Always consider that documents provided to the U.S. government may become subject to a FOIA request.
- Only submit necessary information/documentation.
- Those who wish to see their documents
   protected should assure that the documents
   containing proprietary or confidential
   information are marked exempt from disclosure
   under the FOIA.

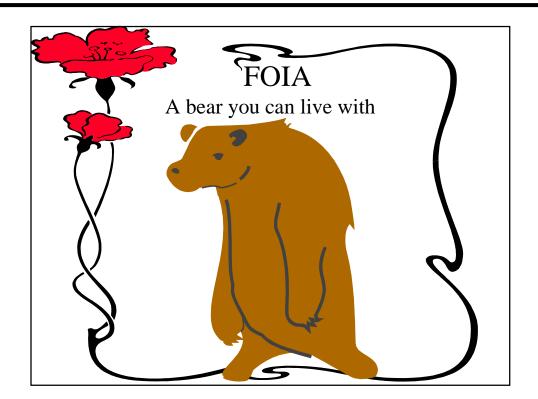


# **Summary**

- Once a FOIA request is received, Submitters of the requested material will be notified and given the opportunity to claim a FOIA exemption.
- Just like FOIA Requesters, Submitters have certain administrative and judicial appeal rights.
- Always cooperate with FAA (remember Voluntary distinction of Exemption 4!)

# **QUESTIONS?**





#### SPECIAL PROCESS SPECIFICATIONS

- <u>Special Processes</u> The methods whereby materials, parts, or assemblies are worked or fabricated through a series of precisely controlled steps, and which undergo physical, chemical, or metallurgical transformation
- Order 8110.4A paragraph 34(a) through (g) discusses special processes and how to evaluate them.
- Includes Nondestructive Inspection (NDI) Processes
- Must be referenced on each drawing that they apply to and on the master drawing list. (Reference FAR 21.31)

#### SPECIAL PROCESS SPECIFICATIONS

 Aircraft, Engine and Propeller parts which are subject to special processes such as heat treating, plating, bonding, welding, etc.
 MUST have those special process specifications thoroughly conformed.

#### SPECIAL PROCESS SPECIFICATIONS

- Special Processes can effect the strength, corrosion resistance, and continued operational safety of aircraft, engine and propeller parts.
- Order 8110.4A Chapter 5 requires a 5 phase evaluation of each new special process specification.

# SPECIAL PROCESS SPECIFICATIONS

• Approximately 60% of all manufacturing related Airworthiness Directives are special process related. The Transport Airplane Directorate has issued Airworthiness Directives to correct UNSAFE conditions created during bonding, plating, vacuum brazing and hydrogen embrittlement relieving special processes.

#### SPECIAL PROCESS SPECIFICATIONS

• Special Process Specifications must be written in a manner to provide <u>specific</u> information regarding materials, times, temperatures, tolerances, etc... Some MIL/SPECS/STD's and some industry specifications may not be acceptable because they lack specific information.

## EXAMPLES OF SPECIAL PROCESS MILITARY SPEC/STD THAT REQUIRE WRITTEN PROCEDURES

MIL SPEC/STD PARAGRAPH REQUIRING A WRITTEN PROCEDURE
MIL-H-6875H PARAGRAPH 4.41 "SUITABLE EVALUATION

HEAT TREATMENT PROCEDURES."

FOR STEEL

MIL-STD-1949A PARAGRAPH 4.4 "WRITTEN PROCEDURES"

MAG PARTICLE PARAGRAPH 4.4.1 "ELEMENTS OF A

WRITTEN PROCEDURE."

MIL-W-8611 PARAGRAPH 4.1 "QUALIFIED PROCEDURES"
MIL-W-8604 PARAGRAPH 4.2 "PROCEDURE QUALIFICATION"
MIL-STD-2219 PARAGRAPH 4.10 "WRITTEN PROCEDURES"

FUSION WELDING

## Los Angeles DER Recurrent Seminar-September 22, 1999 Special Process Specifications

# EXAMPLES OF SPECIAL PROCESS MILITARY SPEC/STD THAT REQUIRE WRITTEN PROCEDURES

MIL-H-6088G PARAGRAPH 3.1 PROCESS ESTABLISHMENT

HEAT TREATMENT REQUIRES "FULLY CAPABLE HEAT

OF ALUMINUM TREATMENT PROCEDURES"

MIL-STD-6866 PARAGRAPH 4.6 "WRITTEN PROCEDURE"

LIQUID PENETRANT

# **Internet Update**

Ray Brown
AFS-610
(405) 954-6915
ray.brown@faa.gov

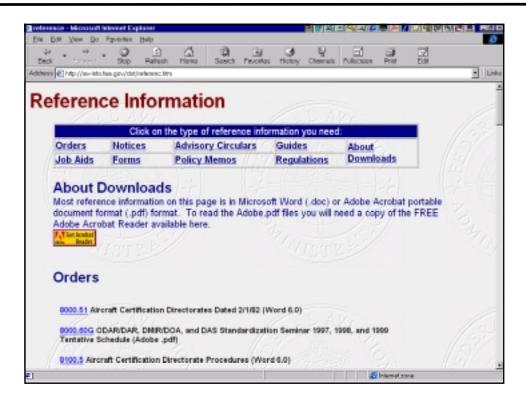
## Designee Web Page

- \* We now have an FAA Designee and Delegation website to assist you. It contains:
  - Background/History
  - Application
  - Reference
  - Training
  - News
  - FAQ
  - Statistics
  - Related Initiatives



## **DER Information**

- Application Information (for new or expansion of authorization)
- \* FAA Form 8110-3 (Fill-in the Blanks)
- Guidance Orders, Notices, ACs, Links to Regulations
- Training Schedule, Invitation,
   Presentations
- Useful Links STC Summaries, TCDS, Federal Register, FAA Academy

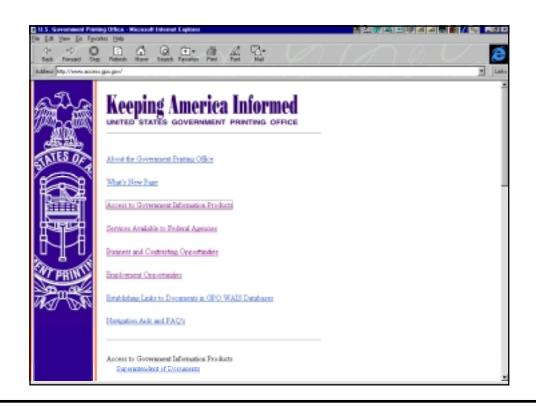


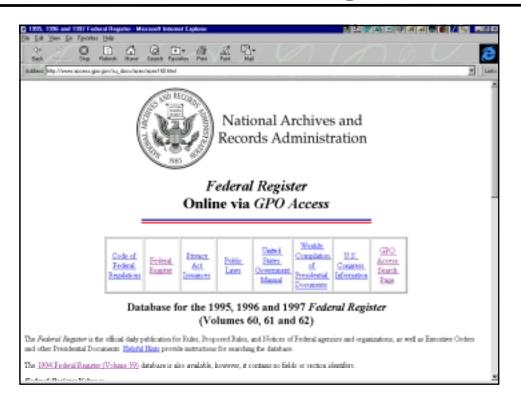
## **File Formats**

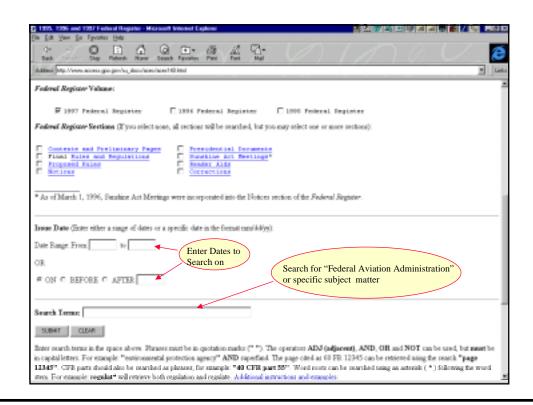
- Word (.doc) and (.txt) files may be read using Microsoft Word or compatible word processing software
- \* (.pdf) files require Adobe Acrobat Reader. (A Free Acrobat Reader is available from www.adobe.com or FAA Homepage)
- \* (.exe) files automatically download when "opened"

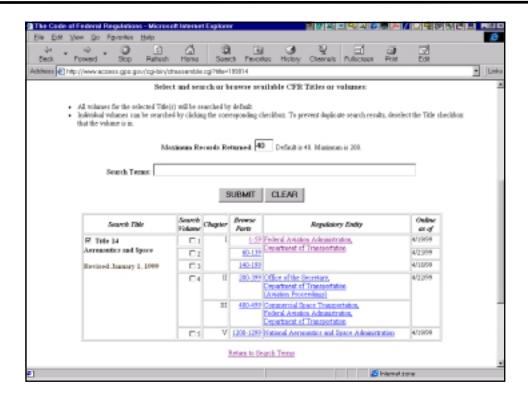
## **Government Printing Office**

- \* www.access.gpo.gov
- \* Access to Regulations
- Search Engine for 1994 and Later Federal Register
  - Airworthiness Directives
  - Rulemaking Activities
- \* Search or Browse specific FARs http://www.access.gpo.gov/nara/cfr/index.html













## **AVAILABLE DOCUMENTS**

- \* Order 8110.42A
- \* Class D Cargo Compartments Conversion Status
- \* Advisory Circulars
- Draft Advisory Circulars
- Designee and Delegation Web Page
- \* TSO-C151 Test Cases
- Aging System Program
- Manufacturing Designee Survey Summary
- Aircraft Certification Service Software Home Page
- \* Notice 8110.73, Implementation of the TSOs for Parts
- \* Aging Transport Non-Structural Systems Plan
- \* Safety Analysis Team Report

# AVAILABLE DOCUMENTS (Continued)

- \* STC Listing
- \* Type Certificate Data Sheets
- \* BAAs/BASAs
- \* (GPS/WAAS) Guidance
- \* FAA Order 8110.37A DER Guidance
- \* Inflight Aircraft Icing Plan
- \* National Resource Specialists
- \* Notices
- \* Order 8400.11
- \* Technical Training Brochures
- \* TSOs
- \* FAA Files at FEDWORLD

## **Internet Summary**

- \* Many sites FAA, US Government, Other
  - Designee Website is now our main focus
  - http://av-info.faa.gov/dst
- \* Some sites are updated frequently others are out of date
- \* Site development Provide useful feedback to kevin.kendall@faa.gov

## FEDERAL AVIATION ADMINISTRATION NATIONAL RESOURCE SPECIALIST NRS REPRESENTATIVES



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Flight Deck Human Factors Kathy Abbott. AIR-105N		
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	425/227-2760	(Seattle)
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<b>P</b>	Electromagnetic Interference	Dave Walen, AN	M-110N
		425/227-1156	(Seattle)
<b>P</b>	Aeronautical Communication	.Tom Kraft, ANM	I-114N
		425/227-2129	(Seattle)
<b>P</b>	Manufacturing & Quality	Ben Pourbabai,	AIR-200
	Assurance Technology	202/267-3984	(Wash., DC)
<b>P</b>	Engine Dynamics & Safety	.Chester Lewis, A	NM-116N
		425/227-1653	(Seattle)

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- **\*\* NRS Program Manager......Cindy Soffe, AIR-101 (Wash. DC) 202/ 267-7121 (FAX: -5340)**
- NRS Program Secretary......Maritza Blakely, AIR-100 (Wash. DC)
   202/ 267-7242 (FAX: -5340)
- NRS Support (LA ACO.).....Betty Shrout, ANM-100L
  562/627-5212 (FAX: -5209)
- P NRS Support (Seattle)......Judy Brundage, ANM-100S
   425/227-2763 (FAX: -1181)

## **NRS PROGRAM**

- → COVERED BY ORDER 8000.45
- → ORIGINAL ORDER SIGNED BY LANGHORN BOND 10/23/79
- → REVISION 8000.45A SIGNED BY LANGHORN BOND 5/29/80
- → CURRENT 8000.45B SIGNED BY LYNN HELMS 1/27/83
- → NATIONAL RESOURCE SPECIALISTS (NRS) PROGRAM IS ESTABLISHED TO ASSURE CONTINUED FAA TECHNICAL COMPETENCE IN THE AIRCRAFT CERTIFICATION PROGRAMS
- → NRS ACTIVITIES ARE CONFINED TO THEIR SPECIALTY

#### NRS PROGRAM continued)

- → WASHINGTON HEADQUARTERS HAVE RESPONSIBILITY FOR NRS POSITIONS
- → NRS TRAVEL BUDGET CONTROLLED BY WASHINGTON
- → NRS'S ARE RESPONSIBLE TO ALL FOUR DIRECTORATES
- → NRS HELP CAN BE REQUESTED BY CALLING INDIVIDUAL NRS
- → NRS POSITIONS ARE ADVISORY
- → DIRECTORATE BRANCHES HAVE FINAL RESPONSIBILITY

#### NRS MAJOR DUTIES

- 1. Provides professional technical direction, guidance, advice and assistance to professional and academic organizations, private industry, other governmental bodies, and individuals on a national and international basis.
- 2. Observes, investigates, analyzes, evaluates, reports on, and assures compliance with standard guides, precedents, methods, and techniques in his/her field of expertise.
- 3. Represents the DOT/FAA at international meetings and conferences as the U.S. Government recognized expert in his/her field of expertise in airworthiness certification of civil aircraft, parts, and products.
- 4. Plans, executes, and may conduct major studies in critical and controversial technical problem areas that impact air safety on a national and international basis in his/her field of expertise.

#### NRS MAJOR DUTIES (continued)

- 5. Provides professional technical direction, guidance, advice and assistance to Type Certification Boards, Airworthiness Directive Boards, Maintenance Review Boards, Flight Operation Evaluation Boards, Special Certification Review Teams, and Special Condition Standards Review Activities for the purpose of assuring and achieving the airworthiness and safety of civil aircraft.
- 6. Continually reviews, analyzes, evaluates, and recommends revision to or the development of new national policy, Federal Aviation Regulations, Advisory Circulars, Maintenance Alert Bulletins, Orders, and Notices that affect and impact the aviation industry in their respective field of expertise.
- 7. Reviews and evaluates the effectiveness of field elements certification activities with regard to findings of compliance to FAR, including review of the adequacy and currency of related agency procedure and guidance within their area of expertise.

#### NRS MAJOR DUTIES (continued)

- 8. Takes independent action to initiate research and development projects to advance state-of-the-art technology within their field of expertise.
- Maintains proficiency and currency regarding U.S. airworthiness
  requirements for foreign manufactured parts and products intended for
  import into use aboard civil aircraft in this country.
- 10. Identifies, develops, directs, and may conduct technical training within the field of (his/her expertise) as required and directed by the agency needs.
- 11. Maintains professional and technical knowledge within the engineering and scientific field of expertise through continuing education, publication of scientific papers, and active attendance at, and participation in seminars and symposiums.

# Why we need an NRS Program

- FAA needs to be at the forefront of change if the U.S. is to maintain its position of world leadership in the aviation industry.
- It is important for the FAA to possess the intellectual capital required to deal with
  - \* the growth in aviation, and
  - \* the rapidly advancing aerospace technology.

# What Makes the NRS Program Unique

NRS's are "world class experts" in their fields.

NRS's have unrestricted access to anyone worldwide, and Anyone, anywhere has access to NRS's.

NRS' provide advice and counsel, they do not establish policy or approve.

**ROLE OF THE NRS** 

Be the expert
Share the expertise